

1980

SWAN LAKE NATIONAL WILDLIFE REFUGE
Sumner, Missouri

ANNUAL NARRATIVE REPORT
Calendar Year 1980

NATIONAL WILDLIFE REFUGE SYSTEM
Fish and Wildlife Service
U.S. DEPARTMENT OF THE INTERIOR



Personnel

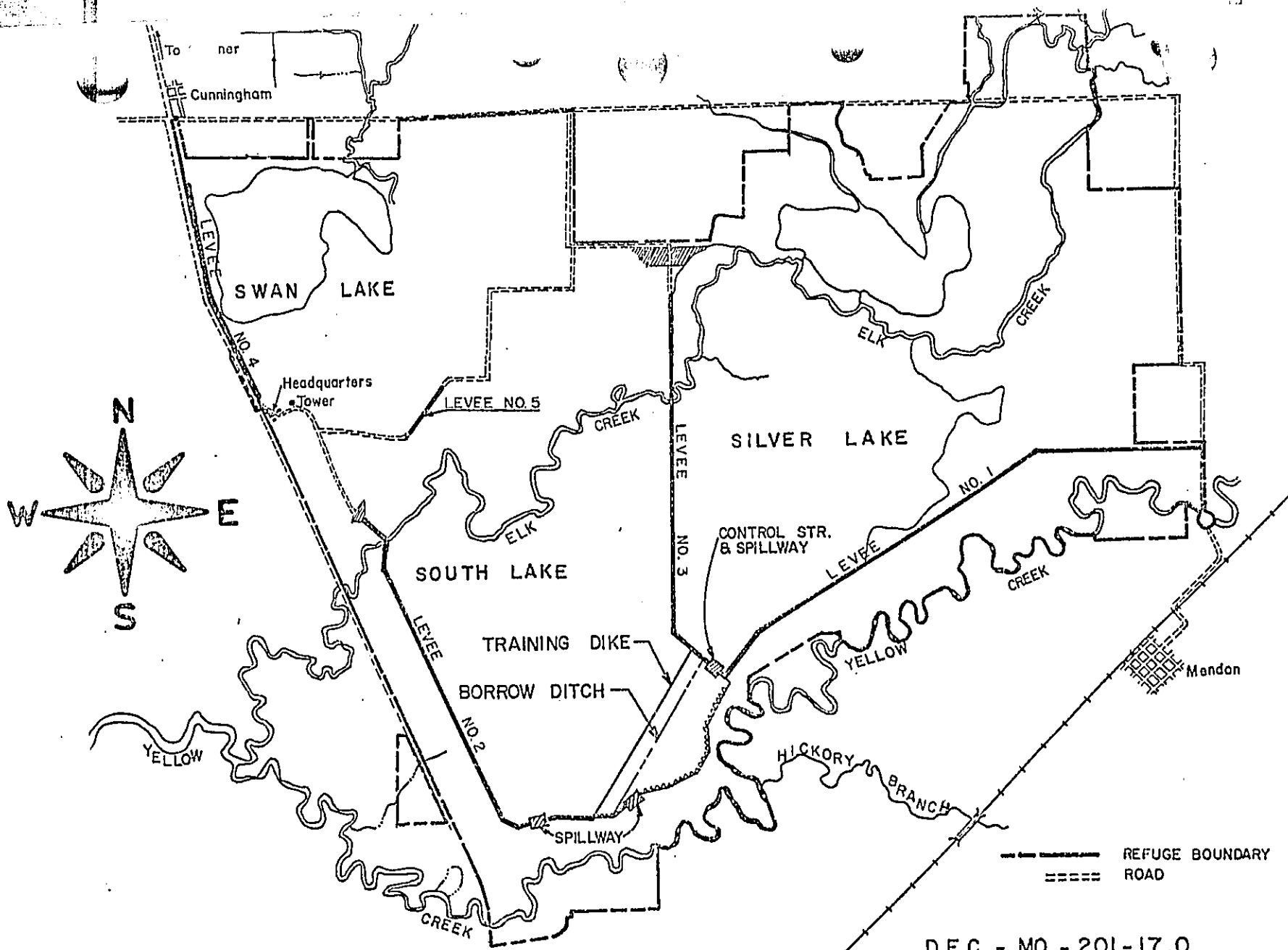
- | Personnel | | |
|-----------|---|-----------------------------------|
| 1. | Alfred O. Manke, Refuge Manager, GS-485-12,
Permanent Full-time | 8/8/71 |
| 2. | Jerry D. Kuykendall, Asst. Refuge Mgr. GS-485-9,
Permanent Full-time | 1/19/78 |
| 3. | Janis A. Turner, Refuge Asst. (Typing) GS-303-5,
Career-Seasonal | 7/19/76 |
| 4. | Bennie M. Hull, Bio. Tech., GS-404-7,
Permanent Full-time | 8/2/65 |
| 5. | Harold C. Milligan, Tractor Oper., AG-5705-6,
Permanent Full-time | 5/14/75 |
| 6. | Edward R. Moyer, Outdoor Sec. Planner, GS-023-5,
Permanent Full-time | 6/19/78 |
| 7. | Stuart L. Burnside, Tractor Oper., AG-5705-6,
Full-time Furlough | 4/7/72 - 10/4/80
(Furloughed) |
| 8. | Irvy L. Miller, Tractor Oper., AG-5705-5,
Full-time Furlough | 3/23/80 - 10/4/80
(Furloughed) |

Review and
Jerry D. Kuykendall 2/3/81
 Submitted by Date

Area Office Small Group Date 2/20/81

Swan Lake NWR, Missouri
Refuge

Regional Office _____ Date _____



SWAN LAKE N.W.R.

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I. GENERAL

A. Introduction

Swan Lake National Wildlife Refuge is located in the floodplain of the Grand River near its confluence with the Missouri River in the north-central part of the State. This section of Missouri is described as the upland plain or prairie region. It is rolling country with many small streams, resulting in rapid run-off except in the flat floodplains of the larger rivers which are highly subject to flooding. Many of the floodplain areas have been enclosed by levees, cleared of timber and are being farmed. Old oxbows and depressions in unleveed sections form many marshes and ponds.

On the refuge there are 5000 acres of impounded water, 2700 acres of cropland, 1500 acres of uplands, and 1500 acres of bottomland timber.

Located within a large agricultural area, the refuge and surrounding farms attract the largest wintering concentration of the Eastern Prairie Population of Canada geese in the Mississippi Flyway. Flyway objectives call for a post-season population of 200,000 geese, the majority of which winter on or near the refuge.

B. Climatic and Habitat Conditions

Unusual weather was the usual for 1980. The year began mild and dry; progressed to hot and dry, and ended mild and dry. Temperatures remained unseasonably warm and rainfall measured 15" below normal.

Extreme drought conditions prevailed; normal precipitation for April, May, June, July, and August is 20.1"; but in 1980, only 6.5" of rain fell during this period. Consequently, the corn crop was a complete failure, yielding only five bushels per acre. Swan Lake was completely dry, South Pool was reduced from 600 surface-acres of water to 100 acres, and Silver Lake was 30" below normal. Compounding the miseries of the drought were the extremely hot, dry winds that swept through the area in June, July, and August. Temperatures soared to 100°, or higher, about 25 of the 31 days in July, with 18 consecutive days of 100° + heat.

Habitat conditions continued to deteriorate from the drought throughout the fall, until 4" of rain fell December 6-7. Silver Lake rose 20", preventing a major fish kill from freeze-out. Along with the rain came flooding from Yellow Creek, and Grand

CLIMATIC AND WATER CONDITIONS



Flooding of patrol road JNK



River. The patrol road was washed out in several places and approximately 20 State goose blinds were closed due to the high water. The flood waters receded within a few days, repairs were made and the hunting operation returned to normal. As of this writing no rain has fallen since December 7.

C. Land Acquisition

1. Fee Title

None.

2. Easements

Not applicable.

D. System Status

1. Objectives

The primary objective of Swan Lake National Wildlife Refuge is waterfowl. The Eastern Prairie Population of Canada Geese Management Plan has set an objective for this refuge to produce 125,000 bushels of grain annually. This commitment is to help feed 200,000 plus Canada geese of the EPP that winter in the Swan Lake Zone. To meet this objective the refuge in fiscal year 1980, expended 433 man-days and \$79,000 in the migratory bird cropland management program.

The disparity between objectives and refuge outputs continued. The objective level for waterfowl use-days at Swan Lake NWR is 27,500,000; we only recorded 15,000,000 U-D in FY-80. The objective level is realistic but a reduced fall flight and the failure of refuge crops decreased refuge outputs.

In the Interpretation and Recreation program, 120,000 activity-hours were recorded in Wildlife Recreation and Interpretation. The objective level for Wildlife Recreation, Consumptive and Non-consumptive, and Interpretation is 374,000 activity-hours. Outputs in these categories for 1977 were 187,000 A-H; 1978, 155,000 A-H; 1979, 159,000 A-H; and in 1980, 120,000 A-H. All considerably less than the objective level. The writing of a Public Use Plan in 1981 will include assessment of refuge I&R objectives.

2. Funding

There were four BLNP projects funded in FY-80. These included

equipment replacement - \$125,000; construction of Administrative Office/Visitor Contact Station - \$302,000; construction of five miles of cropland flood protection levee - \$326,000; and flood damage repair - \$85,000.

Planning Allowance:

Subactivity	1976	1977	1978	1979	1980
1110	0	0	\$400	\$300	0
1210	\$119,000	\$127,650	\$157,200	\$177,000	\$193,000
Rehab	0	\$53,000	0	0	\$8,000
1220	\$1000	\$1000	\$1000	0	\$2,000
1230	\$4000	\$1000	\$500	\$1500	0
1240	\$13,500	\$26,200	\$33,200	\$35,000	\$29,000
1400	\$250	\$300	0	0	0
Total	\$137,750	\$212,150	\$192,300	\$213,800	\$232,000

Manpower is shown on the personnel page.

II. CONSTRUCTION AND MAINTENANCE

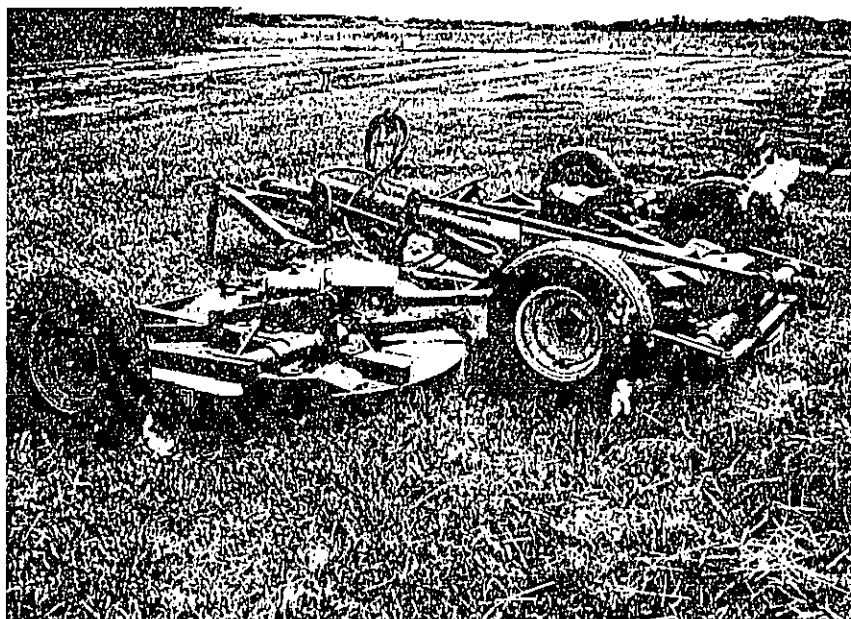
A. Construction

This was a year of major activity in regards to construction and equipment replacement. Not since the days of CCC has there been this much money and manpower devoted to this refuge for rehabilitation and new construction.

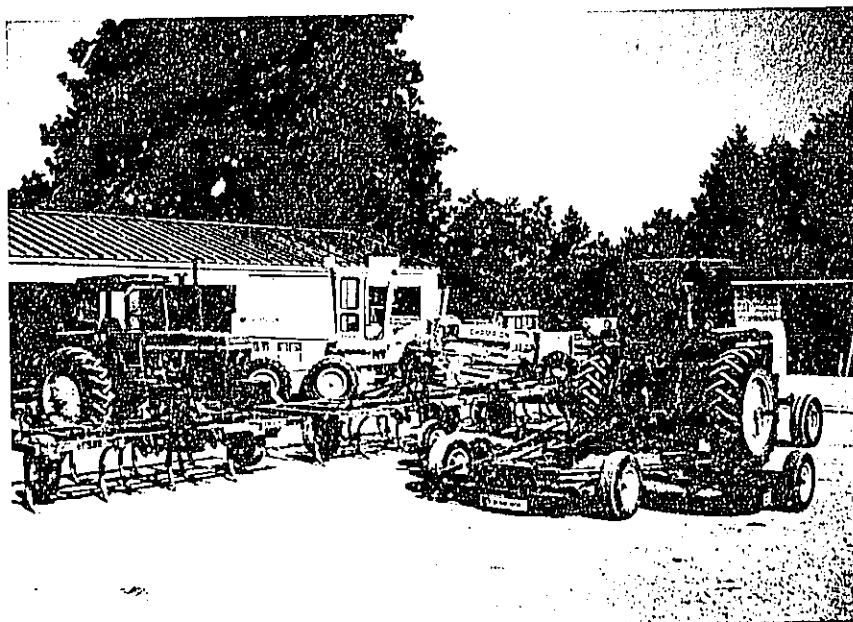
Equipment purchased under BLNP included a 15' Bush Hog Rotary Mower; three, 12' Bush Hog Chisel Plows; a Jeep Cherokee 2-Door Wagon; two John Deere 4440 Tractors w/cabs; A Champion 710-A Road Grader w/cab; and a Gehl 335 Bushel Manure Spreader. The chisel plows and manure spreader were purchased in support of the organic farming. We went to larger tractors and implements to increase the output of our existing manpower. For instance, mowing corn stalks and milo stubble in years past was a four-six weeks job, with the larger tractors and mowers we can now accomplish this task in two-three weeks. Naturally, this principal carries on throughout the entire farming operation. The jeep Cherokee replaced a 1971 Dodge 1/2 ton pickup and the Champion road grader replaced a 1940 120 "Cat" grader.

Construction of the Office/Visitor Contact Station began in July and by December 31 the 3200 sq.ft. building was 95% complete. The design of the building is a URS maxi which contains three offices, administrative area, visitor information lobby, and a multi-purpose room. Moving from an office containing 450 sq.ft. to one having 3200 sq.ft. will be a pleasurable experience.

CONSTRUCTION AND MAINTENANCE



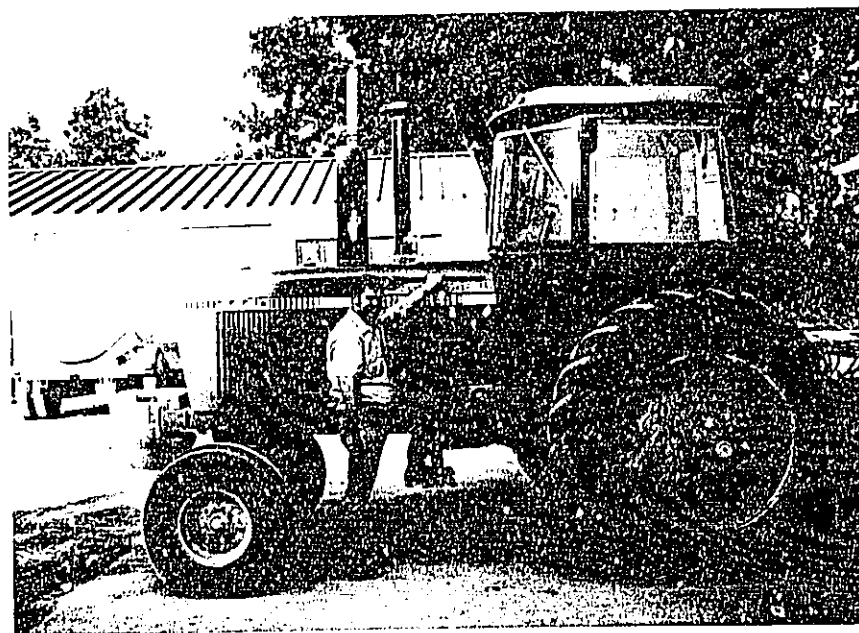
BLMP Equipment Purchases JNK



CONSTRUCTION AND MAINTENANCE



BLHP Equipment Purchases JDK



The third BLNP project is the construction of five miles of levee for cropland flood protection and rehabilitation of drainage and "W" ditches. Completion of this project will provide the refuge with an additional 1000 acres of protected cropland, which will be a major contributor in attaining our goal of producing 125,000 bushels of grain annually.

The fourth project, the flood damage repair work, hopefully, will be done in 1981.

B. Maintenance

New entrance signs and informational signs that were ordered in 1979, finally came in 1980. The signs were fabricated at the Federal Prison in Atlanta, Georgia, at a cost of about \$4500. The three entrance signs were installed by the refuge staff with a contractor building the brick bases. The informational signs were installed in the interior of the refuge by YCC enrollees.

Three, 36" culverts were installed to improve roadside drainage.

The interior of the observation tower was painted and new windows were installed.

Some 450 tons of gravel were spread on the road leading to the Habitat Trail.

Approximately 1000 tons of riprap were placed in washouts along Levee #3.

A new submersible well pump was installed at Quarters #3.

A new Jeep pickup was received, compliments of Squaw Creek National Wildlife Refuge. Squaw Creek ordered one, GSA sent two, we received the extra one; and Squaw Creek paid for both! Such a deal!

C. WildFire

No wildfires occurred on the refuge.

III. HABITAT MANAGEMENT

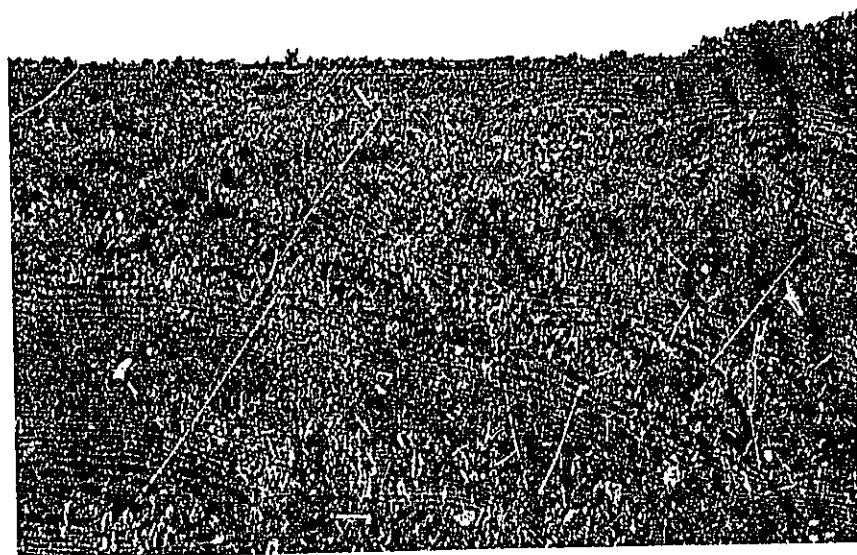
A. Croplands

The Swan Lake NWR organic farming program continues to progress. Our cropland management consists of a four-year crop rotation.

HABITAT MANAGEMENT



Hairy Winter Vetch ERM



The first year is corn, then milo, followed by winter wheat, and concluding the cycle is clover. Additionally, the following practices are included. After the last cultivation of milo, hairy winter vetch will be interseeded to add nitrogen and organic matter to the soil. Also, at this time, the row crops will be foliar fed nitrogen by spraying a fish concentrate directly on the plant. On the wheat fields a low grade carbon compound called humates will be applied. Humates form humic acid and accelerate the process of forming organic matter in the soil. The final practice we have included is the use of livestock manure on our fields.

The following Table I indicates acreage and treatments in 1979 and 1980. As can be seen from this table many of the fields in 1980 were not yet included in the organic farming program, or the treatment was only partial. Budget restraints prevented doing all that we wanted, for instance vetch seed cost 50¢ a pound, and at 15 pounds per acre the cost of seeding 450 acres to vetch would have cost \$3375. In 1981 we will not be using any inorganic fertilizers and all fields will be in their proper rotation. But, once again, treatments will still be partial because of the budget.

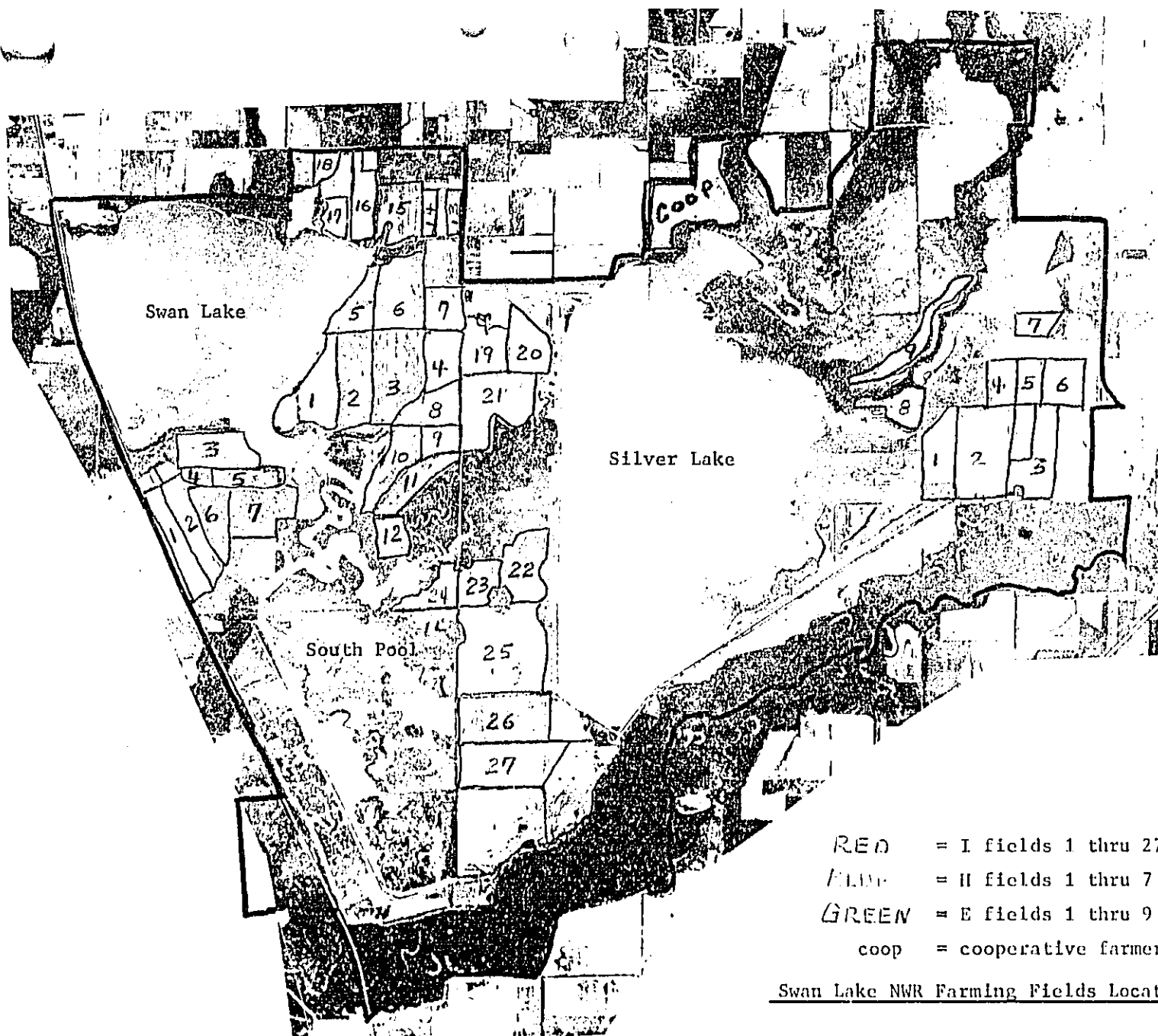
The farming operation began in April when a mixture of 80% sweetclover and 20% alsike clover were aerielly seeded at a rate of 20 pounds per acre on 225 acres. Results were poor as the weather turned extremely dry and many of the seeds remained unsprouted on the rock hard surface.

The row crop operation began the middle of April and by May 31, 1100 acres had been chisel plowed and disked, with 450 acres of it planted to corn and 650 acres planted to milo. Extremely hot, dry weather was prevalent throughout the growing season, nullifying our efforts to grow a crop. From the first of June through the end of July, rainfall amounted to about 1-1/2". To worsen matters, temperatures soared to 100° or higher about 25 days out of the 31 days in July. As a result corn that was knee-high on the fourth of July was still knee-high on the 31st, and burned to a crisp. During August the wheat ground was prepared and seeded. An inch of rain fell on the 14th and another inch fell on the 21st. This helped salvage our milo and got our wheat off to a pretty good start, but it was too late for our corn.

The corn yield was estimated at five bushels to the acre. The milo yield was approximately 60 bushels per acre, for a total grain yield of 41,250 bushels. In terms of waterfowl-use days this provided enough food for 4,537,500 goose-use days.

TABLE 1

Field	Acreage	1979	1980
H1	32	corn; NPK 100-20-100	miló
H2	40	corn; NPK 100-20-100	corn; NPK 100-20-200
H3	48	miló; vetch	wheat; humates
H4	11	miló; NPK 100-20-100	wheat; humates
H5	20	miló; fish	corn
H6	36	corn; NPK 100-20-100	miló
H7	55	miló; fish	miló
I1	77	corn; NPK 100-20-100	corn; NPK 100-20-200
I2	57	corn; NPK 100-20-100	miló
I3	64	corn; NPK 100-20-100; vetch	corn; NPK 100-20-200
I4	45	corn; fish; vetch	wheat; manure
I5	28	corn	miló
I6	67	miló	wheat; humates
I7	38	miló	corn; fish
I8	34	wheat	clover
I9	22	wheat	clover
I10	40	wheat	corn
I11	34	wheat	miló
I12	21	wheat	miló
I13	14	miló	miló
I14	14	miló	miló
I15	53	corn; NPK 100-20-100	miló
I16	34	miló; fish	wheat; humates
I17	16	corn; NPK 100-20-100	miló
I18	13	corn; NPK 100-20-100	miló
I19	40	wheat; humates	clover
I20	38	corn; NPK 100-20-100	miló
I21	74	miló; vetch	wheat; humates
I22	51	wheat	clover
I23	31	wheat	miló
I24	27	wheat	miló
I25	138	miló; vetch	wheat; humates
I26	85	miló; vetch	corn; NPK 100-20-200
I27	76	wheat; humates	clover
E1	35	wheat; clover	miló; fish
E2	95	clover	1/2 corn; 1/2 miló; fish
E3	44	miló	wheat; humates
E4	16	wheat	wheat; humates
E5	20	clover	miló; fish
E6	30	clover	miló; fish
E7	20	miló	wheat; humates
E8	28	corn	miló
E9	60	corn; NPK 100-20-100	miló



Swan Lake NWR Farming Fields Location

HABITAT MANAGEMENT



Corn Crop - 5 bushels/acre JDK



Because of the hot, dry conditions it was not possible to measure the effects of organic farming. Hopefully, 1981 will be a more prosperous year.

The Missouri Department of Conservation planted 780 acres of winter wheat for goose browse in the public hunting area on the refuge.

We had one permittee farming on the refuge. He planted 63 acres of corn and 31 acres of wheat. Our share was 33% of the corn and 40% of the wheat.

B. Grasslands

State personnel mowed 350 acres of grasslands in the public hunting areas.

Refuge personnel controlled burned 300 acres of native grasses. The big and little bluestems, Indian grass, switch grass, and prairie cordgrass responded well to the burn.

C. Wetlands

Increased siltation and blackwillow and bulrush invasion in the shallower areas of the impoundments have reduced water quality and decreased moist soil production.

Wetland management consisted of spring draw downs to produce moist soil foods and flooding in the fall for waterfowl use. Because of the drought Swan Lake went completely dry, allowing us to mow and burn 300 acres of bulrush. Short term results were good, as these areas produced a good stand of millet and smartweed, but we also noticed sprigs of bulrush. We suspect that a year of inundation may be the solution to our problem.

D. Forestlands

Nothing to report.

E. Other Habitat

Nothing to report.

F. Wilderness and Special Areas

About 1000 acres of bottomland timber have been designated as a Research Natural Area.

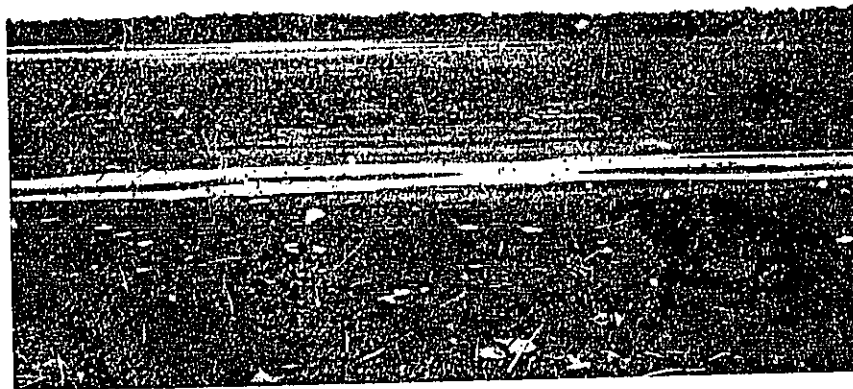
HABITAT MANAGEMENT



Controlled Burn-300 acres Native Grasses BHM



HABITAT MANAGEMENT



Spring Drawdown = Smartweed JDK



HABITAT MANAGEMENT



Burning 300 acres Bulrush - Millet JJK



G. Easements for Waterfowl Management

Not applicable.

IV. WILDLIFE

A. Endangered and/or Threatened Species

The bald eagle and the peregrine falcon are the only nationally listed endangered species found on Swan Lake National Wildlife Refuge. Eagles are quite common in their occurrence here, but the falcons are rare.

Bald eagles use this refuge for loafing, feeding, and roosting. They begin arriving in October, peak in December-January, and fly north in March-April.

This year the eagle population peaked in December at 139, and one golden eagle. In 1979 there were 181 bald eagles on the refuge, the decline has been attributed to the dispersed goose flock and mild weather. Our records and observations show that eagle-use-days on the refuge are directly proportional to waterfowl use-days.

Missouri Department of Conservation Waterfowl Biologist David A. Graber sighted a peregrine falcon on Swan Lake, September 28. No other sightings were observed.

The following wildlife found on the refuge are on Missouri's endangered species list: marsh hawk, sharp-shinned hawk, Cooper's hawk, king rail, upland sandpiper, least tern, osprey, smooth green snake, and long tailed weasel.

D. Migratory Birds

1. Waterfowl

Apparently, the unusual is becoming the usual, as it was another disappointing year for the Eastern Prairie Population of Canada geese. Management objectives call for a post-season population of 200,000 geese; our post-season peak was 101,500 geese. The fall migration began with birds arriving in September with a peak fall population of 120,000 birds.

This decline in EPP geese was originally thought to have been caused by poor productivity due to bad weather on

nesting grounds, but this year's productivity was high and there were still no birds. We received a report from Pierre, South Dakota that the Canada geese on the Missouri River in their area have been doubling in numbers each year, for the past five years. According to our information, this year they peaked at 302,000 birds, twice the number they had in 1979. This corresponds to our decline. Band returns from the Pierre area need to be analyzed for possible changes in EPP geese migratory patterns.

The snow/blue goose population peaked at 50,000 in October. It appears that we are getting more snow/blue goose usage than in years past.

Spring duck populations were normal. For example, on March 25 there were:

mallards - 4000	wood duck - 250
gadwall - 1000	ring-necked - 500
pintail - 500	canvasback - 25
green-winged teal - 250	scaup - 500
blue-winged teal - 1000	bufflehead - 25
widgeon - 500	ruddy - 50
shoveler - 1000	common merganser - 25
	hooded merganser - 25

In the fall, mallard, pintail, and teal were numerous. Mallards peaked at 20,000 in December, pintails at 15,000 in October, and teal at 9000 in September.

Pre-season and post-season banding quotas were met. Post-season a total of 2082 Canada geese were banded; 1647 adults and 435 immatures. The fall pre-season banding figures included 1311 adults and 557 immatures for a total of 1868. In the pre-season banding, blood samples were taken from 100 geese of each age and sex for lead residue analysis. The results are not yet known. Blood samples will also be taken during post-season banding for comparison. In both pre-season and post-season, the quotas have called for 500 immatures to be banded, or 2000 geese total, whichever came first.

This year we also had a wood duck banding quota of 100 wood ducks of each age and sex. After countless man-hours we banded 57 ducks. Maybe one of these days we'll hit on the right combination. It appears our biggest problem is extremely low population densities.

Problems with avian cholera were encountered this year. The outbreak began in a flock of 60,000 geese utilizing a farm 10 miles north of the refuge. Approximately 140 dead geese were collected and burned there. Two days later geese on the refuge began dying of cholera. A clean up operation began at that time and all carcasses were collected and incinerated. We estimated that of the 1500 geese we incinerated, 500 died of cholera. The outbreak subsided rather quickly and no further problems were encountered.

2. Marsh and Water Birds

During the spring and summer months a diversity of water and marsh birds can be observed throughout the refuge. Commonly encountered species are white pelicans, great egrets, great blue herons, snowy egrets, and cattle egrets. Less numerous but consistently seen are American bitterns, double crested cormorants and sora rails.

The first recorded sightings of red knots on this area occurred in May, when 30 were observed feeding in Swan Lake.

The white pelican population peaked in the fall with 1500 birds. Heron and egret numbers were around 100 of each species at their peak.

3. Shorebirds, Gulls, Terns and Allied Species

Low water levels and exposed mud flats provided favorable habitat for shorebirds this year. Common species seen were greater yellowlegs, killdeer, black terns, common snipe, ring-billed gull, Bonaparte's gull, and several sandpiper species.

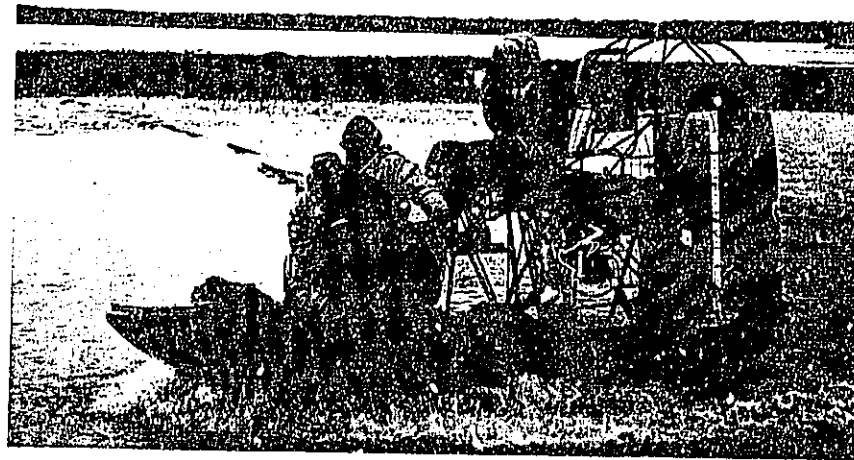
4. Raptors

Raptor populations are quite high on Swan Lake, particularly during periods of waterfowl concentrations. Marsh, rough-legged, and red-tailed hawks are the most numerous, with peaks of 25, 50, and 50, respectively.

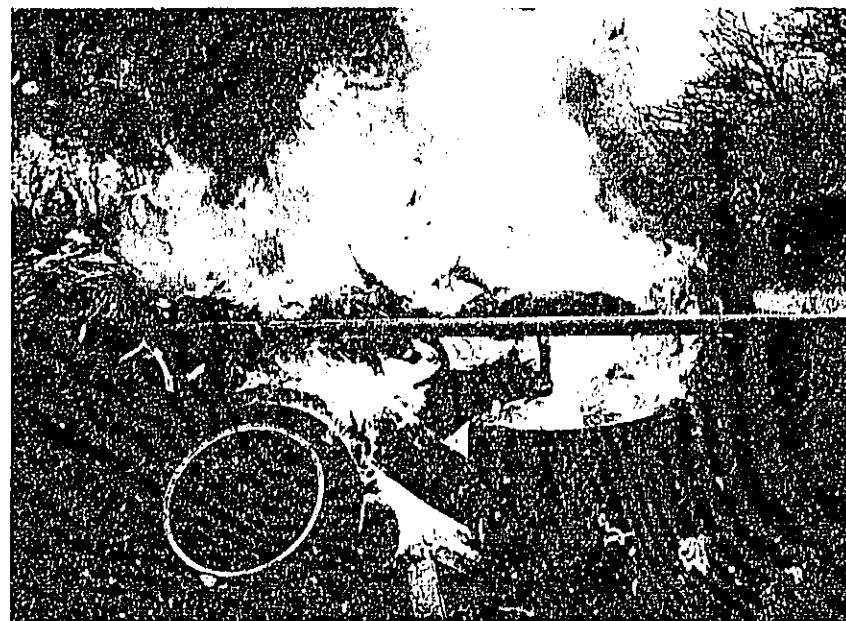
5. Other Migratory Birds

The mourning dove population peaked at 5000 in August. Large flocks of grackles and red-winged blackbirds are common in the fall, with numbers estimated at 1,000,000.

WILDLIFE



Collecting and Burning Avian Cholera Cases BHI



C. Mammals and Non-Migratory Birds and Others

1. Game Mammals

White-tailed deer, cottontail rabbits, squirrels, and raccoons are classified as game mammals in Missouri, all of which occur in abundance on the refuge.

During the late fall and winter months the deer herd increases to a peak population of 500. An outbreak of hemorrhagic disease occurred in the deer herd this fall, but the die-off appeared small.

The squirrel and raccoon populations are excellent in the bottomland timber of the Yellow Creek area.

2. Other Mammals

Muskrat populations appear to have declined in response to our removal of 300 acres of bulrush from Swan Lake.

Beaver activity is abundant in all of the lakes and creeks.

3. Resident Birds

There is a small flock of turkeys, 17 in all, frequently seen in the Yellow Creek area. The quail populations were quite high this year, we estimate about 250 birds on the area.

4. Other Animal Life

There are abundant numbers of the ever popular carp and buffalow

V. INTERPRETATION AND RECREATION

A. Information and Interpretation

1. On-Refuge

In cooperation with the Missouri Department of Conservation, Eagle Days were conducted on this refuge January 5 and 6. After being snowed out last year, the weather was cooperative and both days were a success with 700 people visiting the refuge. The idea of having an Eagle Day was to bring awareness to the public that eagles are here and also to educate

the public as to their status. This appears to be a very popular program and will probably continue for several years.

ARM Kuykendall conducted a one-day Goose Banding Seminar on January 29. The seminar encompassed all aspects of banding plus discussions on biological farming, and refuge management objectives. Personnel from four refuges and three universities enjoyed the learning experience.

The Habitat Trail was well used again this year. About 400 people enjoyed the 3/4-mile walk. The trail was also enjoyed by an estimated one million ticks!

The ever popular annual event of Open House was held on October 26. An estimated 6000 people came to view our 100,000 geese, 30,000 ducks, and 10,000 coots.

The bald eagle-steel shot presentation was used again this year to educate the hunters hunting on the refuge. A 3-M sound-on-slide projector was rented and programmed by ORP Moyer for this purpose. Approximately 10,000 hunters were exposed to this bit of good information.

2. Off-Refuge

During National Wildlife Week, ORP Moyer visited nine local schools and spoke to 1635 students.

A couple of civic organizations called upon us during the year to be on their programs. So, ORP Moyer provided about 100 people with entertainment.

ARM Kuykendall showed films and spoke to 180 high school students concerning wildlife management.

A steel shot film was shown and literature distributed to 95 students at five local schools by ARM Kuykendall.

Information was provided to some 600 interested people via telephone, postal service, and in person. We sent out seven news releases and gave out seven Golden Age Passports to very happy recipients.

A Public Meeting was held September 16, concerning the three-day Primitive Weapons Deer Hunt that was held on the refuge October 11, in cooperation with the Missouri Department of Conservation. Attendance was poor as only 10 people, other than the refuge staff, attended.

B. Recreation**1. Wildlife Oriented**

Fishing is permitted from March 1-September 30, daylight hours only. The quality of our fisheries continues to decline due to siltation and low water, but stringers of buffalo and carp still satisfy most of our fishermen. Approximately 25% of refuge visitation is attributed to local fishermen.

The first deer hunt in the history of the refuge took place October 11, 12, and 13. It was a primitive weapons hunt limited to 150 permit holders, of which there were 17 no-shows. The 138 hunters took a total of 62 deer; 32 bucks and 30 does. No trophy animals were taken during the hunt.

The hunting season for waterfowl in the Swan Lake Zone began November 1, and ended January 9, 1981. A total of 10,246 hunters utilized the refuge public hunting area, killing 4927 Canada geese for an average kill per hunter of .48. The Zone harvest was 18,130 geese. The harvest quota was 20,000.

Wildlife recreation, consumptive, accounts for 75% of our public use outputs.

2. Non-Wildlife Oriented

Nothing to report.

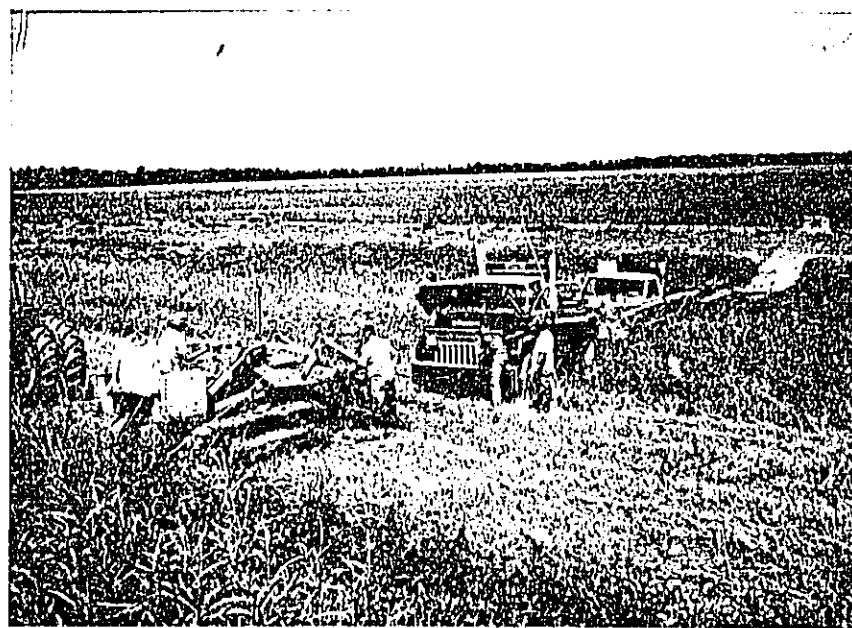
C. Enforcement

The steel shot controversy was a major factor in our enforcement efforts this year. The Missouri Department of Conservation Commissioners decided against steel shot, consequently the U.S. Fish and Wildlife Service ordered all national wildlife refuges in Missouri closed to waterfowl hunting. The Commissioners then reevaluated their decision and a compromise was struck; steel on refuge, lead off. A by-product of this was that the State agents were instructed not to enforce lead shot violations. This created problems for them when doing routine enforcement they discovered a lead shot violation. Because of this we intensified our enforcement efforts during the waterfowl season.

INTERPRETATION AND RECREATION



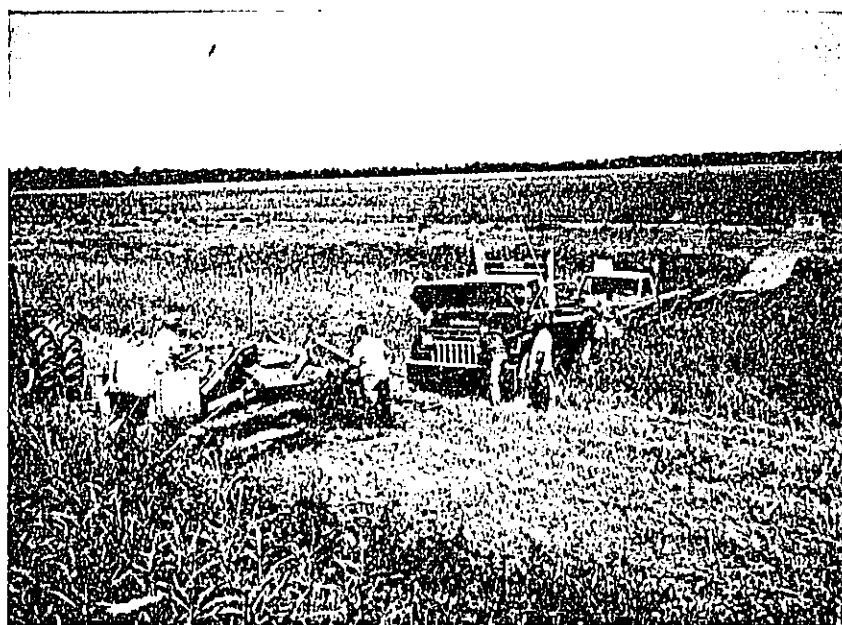
Long Arm of Law Sticks Stuck Yauuapin Picker ERM



INTERPRETATION AND RECREATION



Long Arm of Law Sticks Stuck Van-uapin Picker ERM



Cases filed in U.S. District Court, St. Louis, Mo.:

<u>Number</u>	<u>Violation</u>	<u>Fine</u>
13	Lead shot	\$650.
15	Improperly plugged gun	610.
1	Dog at blind	35.
5	Tresspass	125.
2	Driving off-road	50.
1	Live bird in blind	35.
1	Driving off-road	pending
1	Lead shot - juvenile	not prosecuted
1	Lead shot - juvenile	not prosecuted
1	Tresspass - juvenile	not prosecuted
1	Tresspass - juvenile	not prosecuted
1	Improperly plugged gun	pending
1	Improperly plugged gun	pending
44		\$1505.

Cases filed in Magistrate Court, Chariton County:

	<u>Fine</u>	<u>Cost</u>
3	Improperly plugged gun	\$30. \$66.
1	Shot at geese out of blind	5. 22.
3	Attempt to take over limit	300. 66.
1	Improper permit	25. 22.
2	Tresspass	50. 44.
1	Shot more than 10 shells	70. 22.
1	Fish without permit	5. 22.
1	Improperly plugged gun - juvenile	not prosecuted
13		\$485. \$264.

VI. OTHER ITEMSA. Field Investigations

The U.S. Department of Agriculture, Soil Conservation Service, issued a contract in 1979 to AESCO Oceanographic, Arlington, Virginia, to survey Swan, South, and Silver Lakes to determine sedimentation rates. The project was completed in 1980, but the results are not yet known.

A Waterfowl Mortality Study is being conducted on Swan Lake NWR by the U.S. Fish and Wildlife Service and the Missouri Department of Conservation. Objectives are to determine predator scavenging rates on carcasses, causes of mortality, especially lead poisoning; and mortality rates. The study will be completed in the spring of 1981.

The refuge staff participated in Phase I of the national dove nesting survey.

B. Cooperative Programs

This was the fifth year for a YCC program. It was a non-resident camp of 20 enrollees and four staff members.

Some of the major maintenance projects were: Habitat Trail maintenance, construction of rest benches for Habitat Trail, re-stringing detonator wire to goose trapping site at silo, and installation of public use signs. Environmental awareness projects included: Soil sampling for the organic farming program, wood duck trapping, tree counting survey, and installation of bench marks for a siltation study.

The YACC program was dormant until October when two enrollees were hired.

C. Items of Interest

Alfred O. Manke - Attended: Four weeks Law Enforcement training at FLETC; Organic Farming meeting at Lincoln, Nebraska; Project Leaders Conference, Kansas City, Mo.; Steel Shot meeting at Twin Cities, Mn.; Gyroscope, Salt Lake City, Ut.; Project Leader/Clerk Workshop, Twin Cities, Mn.

Al received a Special Achievement Award for his contributions to the Organic Farming Program. Al retired from the USFWS on January 9, 1981. His experience and knowledge of refuge management will be missed. I for one am glad I had the opportunity to work and learn from him.

Jerry D. Kuykendall - Attended: Project Leaders Conference, Kansas City, Mo.; Fire Training, Flint Hills NWR.

Janis A. Turner - Attended: Project Leader/Clerk Workshop, Twin Cities, Mn.

Bennie M. Hull - Attended: Four weeks Law Enforcement training, FLETC; Caterpillar Workshop, Mingo NWR.

Harold C. Milligan - Attended: 40-hours Fire Training, Flint Hills NWR; Caterpillar Workshop, Mingo NWR.

Irvy L. Miller - Entered on duty March 23, 1980, to replace Ervin Windsor who retired in December 1979.

Narrative Report Credits:

The narrative, with the exception of Part V, Section A, was written by Acting Refuge Manager Kuykendall.

Part V, Section A, typing, editing, correction, binding - Refuge Assistant Manke.

Al Manke and Janis Turner were married on January 12, 1981.

D. Safety

No lost time accidents. It has been 5765 days since a lost time accident has occurred at this refuge.

A multitude of topics were discussed at monthly safety meetings and films were also shown.